

REMARKS/ARGUMENTS

Claims 1-36 were presented for examination and are pending in this application. In an Official Final Office Action dated April 20, 2006, claims 1-36 were rejected. The Applicants thank the Examiner for his consideration and his thoughtful comments, but respectfully traverse the rejections.

I. 35 U.S.C. § 103(a) Obviousness Rejection of Claims

Claims 1-4, 7-10, 12-16 and 19-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,052,134 ("Foster") in view of U.S. Patent No. 4,972,457 ("O'Sullivan"). The Applicants disagree with the Examiner's conclusions on several grounds.

Section 103(a) of title 35 of the United States Code states that a patent may not be obtained if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. See 35 U.S.C. §103(a). To form a *prima facie* case of obviousness under 35 U.S.C. §103 and in accord with section 2143 of the MPEP, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Second, there must be a reasonable expectation that the art suggested in the references cited by the examiner will succeed in creating the claimed invention. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Each of these elements, as well as several secondary considerations supporting a finding of non-obviousness, are addressed in turn.

A. The Examiner provides neither explicit nor implicit reasons why one skilled in the art at the time of the Applicants' invention would modify Foster with the teachings of O'Sullivan.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir., 1990). According to the Federal Circuit, this motivation may be found implicitly or explicitly: 1) in the prior art references themselves; 2) in the knowledge of those of ordinary skill in the art that certain references, or disclosures in those references, are of special interest or importance in the field; or 3) from the nature of the problem to be solved leading inventors to look to reference relating to possible solutions to that problem. See Ruiz v. A.B. Chance Co., 234 F.3d 654, 57 U.S.P.Q.2d 1161 (Fed. Cir. (Mo.), 2000). To prevent the use of hindsight based on the Applicants' invention to defeat the patentability of the Applicants' invention, the Examiner must show a motivation to combine the references that create the case of obviousness. "In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." In re Rouffet, 149 F.3d 1350, 47 U.S.P.Q.2d 1453 (Fed. Cir., 1998). Thus absent some teaching, suggestion or incentive supporting the proposed combination of art, obviousness cannot be established.

The Examiner asserts that it would be obvious for one of ordinary skill in the art at the time of the Applicants' invention to modify the system of Foster with the teachings of O'Sullivan. The Examiner attempts to support his assertion by stating that one skilled in the art would have been motivated to make such modifications in order to add an adapter using an existing available slot without making any hardware changes in the computer or purchasing

additional equipment as suggested by O'Sullivan. Yet a careful word search of O'Sullivan reveals no such motivating statement. The Court in Rouffet stated that to "prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness." *Id.* As in the present invention, the examiner in Rouffet relied on the high level of skill in the art to provide the necessary motivation. Finding such motivation absent, the Rouffet Court stated that "if such rote invocation could suffice to supply a motivation to combine, the more sophisticated scientific fields would rarely, if ever, experience a patentable technical advance." *Id.*

The Federal Circuit has repeatedly warned against the use of the Applicants' invention as a blueprint by which to build a case of obviousness. The Examiner offers no explanation of the specific understanding or principle within the knowledge of one skilled in the art that would motivate one with no knowledge of the Applicants' invention to combine the teachings of Foster and O'Sullivan to create the Applicants' invention. The cost savings and decreased hardware modifications cited by the Examiner as a reason to combine Foster and O'Sullivan are applicable to any invention and provide no reason why one would be motivated to turn to Foster and O'Sullivan to solve the problem faced by the Applicants. These reasons have no foundation for modifying a memory system that dynamically enables/disables memory paging depending on the page hit to pre-charge ratio for accesses to the memory, as disclosed by Foster, with the teaching for a hybrid communications control unit of O'Sullivan to form system that enables data exchange directly between the external device and the memory module bus via a memory module slot.

B. Modifying Foster by the teachings of O'Sullivan fails to provide a reasonable expectation of success to produce the Applicants' claimed subject matter as a whole because neither O'Sullivan nor Foster address and solve key

communication barriers between coupling an external processor directly to the memory module bus.

A proper analysis under 35 U.S.C. §103 includes the determination of “whether the prior art would also have revealed that in so making or carrying out, those of ordinary would have a reasonable expectation of success.” Noelle v. Lederman, 355 F.3d 1343, 69 U.S.P.Q.2d 1508 (Fed. Cir., 2004). While an absolute expectation of success is not necessary, the combined art must provide a reasonable expectation that one skilled in the art will succeed in making the claimed subject matter as a whole. “To have a reasonable expectation of success, one must be motivated to do more than merely to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful. Medichem, S.A. v. Rolabo, S.L. 437 F.3d 1157, *1165 (C.A.Fed. (N.Y.),2006). Foster in view of O’Sullivan provides no indication, no direction and no such reasonable expectation of success.

The Examiner fails to offer any suggestion that one skilled in the art would reasonably expect a modification of Foster, based on the teachings of O’Sullivan, would succeed in creating the Applicants’ claimed invention. The prior art and surrounding circumstances must provide a reasonable reason to do, not a reasonable reason to try to do. Based on what has been accomplished in the art up to the time of the invention, and specifically what is suggested and taught in Foster and O’Sullivan, there is no suggestion of a direction on how to proceed to produce the Applicants’ invention. Countless objective pieces of evidence exist supporting the computing industries goal to increase computing speed, efficiency, and bandwidth. Advancements in computing hardware have progressed to a point where the bandwidth and speed of computing is soon to be limited by the speed of light. In such an

environment, even a 10% increase in computing capability is heralded as a major achievement. The Applicants' invention, which the Examiner asserts is obvious by the teachings of Foster and O'Sullivan, advances data transfer rates associated with an external interface from 256Kb/sec as taught by O'Sullivan to more than 3.1 Gb/sec representing a 1100% increase in computing capability. One skilled in the art at the time of the Applicants' invention would not reasonably expect that modifying Foster by the teachings of O'Sullivan would produce such a result.

C. The Examiner fails to consider the claimed subject matter as a whole in making his obviousness rejection.

One of the hallmarks of 35 U.S.C. §103(a) is that for an invention to be unpatentable the differences between the prior art and the claimed subject matter taken as a whole must be obvious to one skilled in the art. The Examiner fails to consider the invention as a whole and rather dissects and attacks each element individually. As has been repeatedly voiced by the Federal Circuit, "In determining obviousness, the invention must be considered as a whole without the benefit of hindsight, and the claims, must be considered in their entirety." *Rockwell Intern. Corp. v. U.S.*, 147 F.3d 1358, 47 U.S.P.Q.2d 1027 (Fed. Cir., 1998). "In making the assessment of differences, section 103 specifically requires consideration of the claimed invention 'as a whole'". *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 69 U.S.P.Q.2d 1686 (Fed. Cir. (Mo), 2004).

The Examiner argues O'Sullivan suggests connecting a processor element directly to the memory bus via a memory module slot. To support his argument, the Examiner turns to single sentence found on Column 7 beginning at line 32. O'Sullivan states, "For example, the card could be installed in a memory expansion or other expansion slot of computer 90." The preceding paragraphs and the paragraphs that follow this statement described a hybrid communication card that is preferably installed in a conventional modem slot.

O'Sullivan also teaches that when the hybrid communications card is installed in the computer the microprocessor can, for some applications, be eliminated. In this case, the interface would be connected back into an input port. See O'Sullivan Col 7, lines 5-56.

While one sentence of O'Sullivan appears to teach coupling the hybrid communications card to a memory expansion port, the surrounding text teaches away from the Applicants' invention. Section 103 requires that the differences in the prior art as compared to the claimed subject matter as a whole must be so slight as to make the claimed subject matter obvious. Taking the claimed subject matter as a whole, the differences between what is suggested by Foster in view of O'Sullivan are enormous.

D. Each and every element of the claimed invention is not disclosed in the combined references, namely Foster and O'Sullivan.

The Applicants further reiterate, and incorporate by reference, their argument that O'Sullivan does not disclose a processing element providing a "direct" connection between the external device and the memory module slot. The Examiner asserts that "Figure 4 shows communication from external devices passing through the microprocessor to the interface then on to the computer." O'Sullivan remarks in Column 8, beginning at line 24, that "The computer interface 78 is preferably of the type that converse directly with a central logic bus of the portable computer 90...." The Applicants' invention connects an external device having processor directly to the memory bus to exchange data directly between the external device and the memory bus. As shown in Figure 5 of the Applicants' specification, there is no computer interface placed between the processor and the memory bus (computer).

Assuming for argument's sake that O'Sullivan suggests connecting an external device to a memory expansion slot, O'Sullivan nonetheless fails to suggest that the connection allows data from the external device to be

exchanged directly to the memory bus. The interface that O'Sullivan describes is ideally an asynchronous receiver that communicates to the central logic bus. While O'Sullivan does not further define a central logic bus, O'Sullivan describes communications between a hybrid communications card consistent with that conducted on a peripheral communication interface (PCI) bus and not directly with the memory bus.

E. Conclusion

For at least these reasons, claims 1, 13 and 25 are deemed to be patentable over Foster in view of O'Sullivan. Withdrawal of the rejections and reconsideration is respectfully requested.

Claims 2-12, 14-24 and 26-36 depend on claims 1, 13 and 25 respectively and are, for at least the same reasons, patentable over Foster in view of O'Sullivan. As the Examiner's rejections of the aforementioned dependent claims in view of additional art (Whittaker, Tetrick, and Chiles) fail to teach or suggest a processor associate with the memory module that provides for a direct connection between the memory module bus and an external device, claim 2-12, 14-24 and 26-36 are also deemed patentable. Reconsideration and withdrawal of the pending rejections is requested.

In view of all of the above, the claims are now believed to be allowable and the case in condition for allowance which action is respectfully requested. Should the Examiner be of the opinion that a telephone conference would expedite the prosecution of this case, the Examiner is requested to contact Applicants' attorney at the telephone number listed below.

Serial No. 09/932,330
Reply to Final Office Action of April 20, 2006

No fee is believed due for this submittal. However, any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

Respectfully submitted,

Jan 19, 2006


Michael Martensen, No. 46,901
Hogan & Hartson LLP
One Tabor Center
1200 17th Street, Suite 1500
Denver, Colorado 80202
(719) 448-5910 Tel
(303) 899-7333 Fax